

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 0 984 628 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
08.03.2000 Bulletin 2000/10

(51) Int Cl.7: H04N 5/45

(21) Application number: 99307034.1

(22) Date of filing: 03.09.1999

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• Murayama, Yuzo
Shinagawa-ku, Tokyo (JP)
• Sano, Shigeyuki
Shinagawa-ku, Tokyo (JP)

(30) Priority: 04.09.1998 JP 25133398

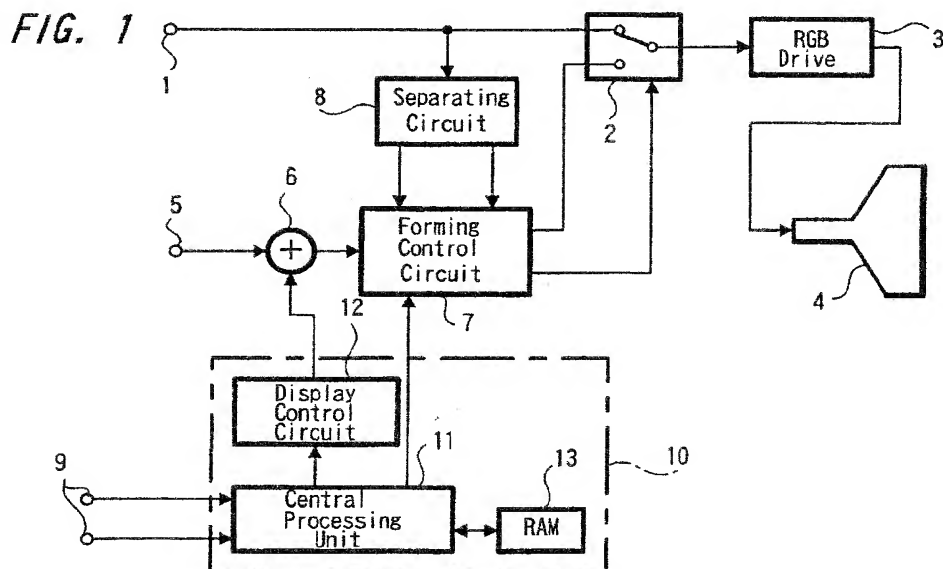
(71) Applicant: SONY CORPORATION
Tokyo 141 (JP)

(74) Representative: Ayers, Martyn Lewis Stanley
J.A. KEMP & CO.
14 South Square
Gray's Inn
London WC1R 5LX (GB)

(54) On-screen display

(57) A video signal of a sub-picture screen is supplied from an input terminal 5 via an adder 6 for superimposing display to a forming control circuit 7 for a sub-picture screen signal, and a sub-picture screen video signal, which is compressed to an arbitrary size, is synthesized with a video signal of a main picture screen from an input terminal 1 at a change-over switch 2. Further, in accordance with a command signal supplied to a microcomputer 10, a central processing unit (CPU) 11 produces a control signal which decides a size, a posi-

tion and the like of display of sub-picture screen. Also, a signal from the central processing unit 11 is supplied to a display control circuit 12 which then produces a figure signal to be superimposed and displayed. Set values of size, position and the like of sub-picture screen display are recorded on and held by a random access memory (RAM) 13. The set values are supplied through the central processing unit 11 to the display control circuit 12 and hence such a figure signal is produced that the figure is reduced or expanded in response to expansion or reduction of the sub-picture screen.



sub-picture screen.

[0014] In the microcomputer 10, the setting values of display size, position and so on of sub-picture screen are recorded on and held in a random access memory (RAM) 13. The setting values are supplied through the control processing unit 11 to the display control circuit 12 to thereby reduce or expand the size of figure in response to expansion or reduction of the above-mentioned sub-picture screen.

[0015] FIG. 2 shows a flow chart of a on-screen display setting process in the microcomputer 10. In FIG. 2, when the process starts, firstly at step S1 a setting process for a display area (size and position) of an image on the sub-picture screen is carried out. Next, at step S2 the size of on-screen display is selected. Then, at step 3 a setting of on-screen display is carried out in accordance with the selected size, and the on-screen display setting process is ended.

[0016] In the process, in order to correspond to the size (expansion or reduction) of sub-picture screen set at step 1, the size of the figure to be superimposed and displayed is selected at step S2 and the size (reduction or expansion) of the figure to be superimposed and displayed is set at step S3, whereby as shown in FIG. 3, for example, even in the sub-picture screen, the figure approximately same in size as that in the main picture screen can be displayed in a superimposing fashion.

[0017] Accordingly, in the video equipment, a figure to be superimposed and displayed corresponding to the expansion or reduction of picture screen is reduced or expanded, whereby the size of figure superimposed and displayed is made substantially same even in the reduced picture screen and hence the figure can be visually recognized with ease.

[0018] Thus, in the conventional apparatus there is a fear that if a picture screen, in which a superimposing display is presented, is reduced, a figure superimposed and displayed therein becomes very small and hence this figure is difficult to be recognized. The present invention can eliminate the above fear easily.

[0019] By the way, the apparatus of the present invention is not limited to the above case where the main picture screen and the sub-picture screen exist but can be applied to a case where a picture screen is merely reduced and/or expanded and then displayed, to a case where a superimposing display is carried out in an information display picture screen by, for example, an arbitrary character and figure, and to a case where a superimposing display is performed in an arbitrary single picture screen among a plurality of picture screens which are displayed together.

[0020] According to the video appliance of the present invention, it is possible that on the display picture screen, a picture screen can be arbitrarily expanded or reduced and displayed at an arbitrary position and that a figure to be superimposed and displayed in association with a picture screen is reduced or expanded in correspondence with expansion or reduction of the picture

screen, and by expanding or reducing the picture screen after the reduced or expanded figure is superimposed on the picture screen, the size of figure to be displayed in a superimposing fashion is made approximately same even in the reduced picture screen. Thus, the figure can be visually recognized easily.

[0021] Therefore, in the conventional apparatus there is a fear that if a picture screen, in which a superimposing display is presented, is reduced, a figure superimposed and displayed becomes very small and hence this figure is difficult to be recognized. However, according to present invention, the problem of the above fear can be eliminated easily.

[0022] Having described a preferred embodiment of the present invention with reference to the accompanying drawings, it is to be understood that the present invention is not limited to the above-mentioned embodiments and that various changes and modifications can be effected therein by one skilled in the art without departing from the scope of the present invention as defined in the appended claims.

Claims

1. A display control apparatus arranged to control the display on a display screen displaying a picture screen which is arbitrarily expanded or reduced of a figure, a character or a symbol at an arbitrary position superimposed on said picture screen,
the display control apparatus being characterized in that
said picture screen is expanded or reduced, and said figure, character or symbol to be superimposed and displayed is reduced or expanded in response to expansion or reduction of said picture screen.
2. A display control apparatus arranged to control the display on a display screen displaying a picture screen which is arbitrarily expanded or reduced of a figure, a character or a symbol at an arbitrary position superimposed on said picture screen,
the display control apparatus being characterized by comprising:
a means for expanding or reducing said picture screen; and
a means for reducing or expanding a figure, a character or a symbol to be superimposed and displayed in response to expansion or reduction of said picture screen.
3. A display control apparatus as claimed in claim 1 or 2, wherein said picture screen is a sub-picture screen displayed on a part of a main picture screen.
4. A display control apparatus as claimed in claim 1 or

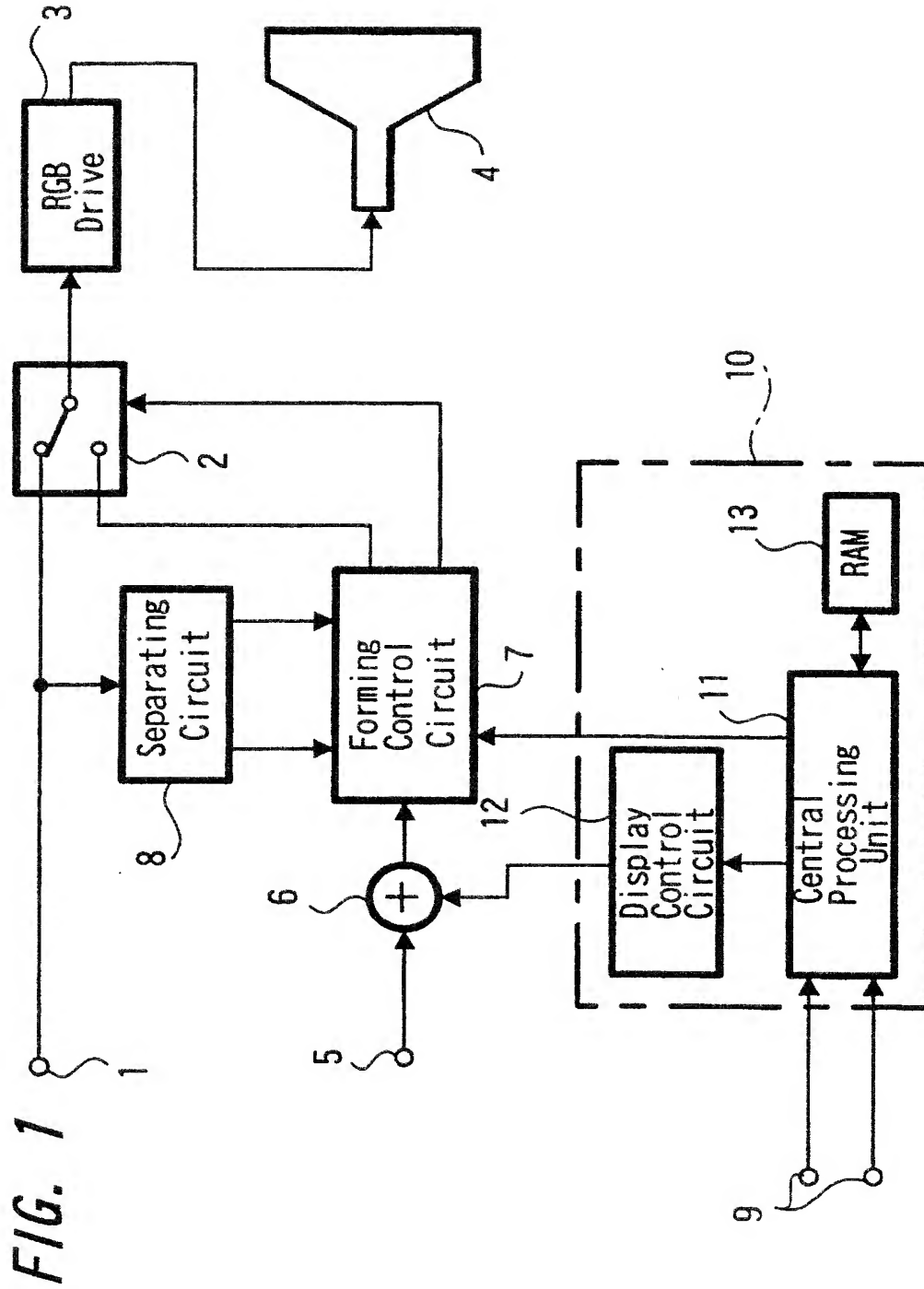


FIG. 3

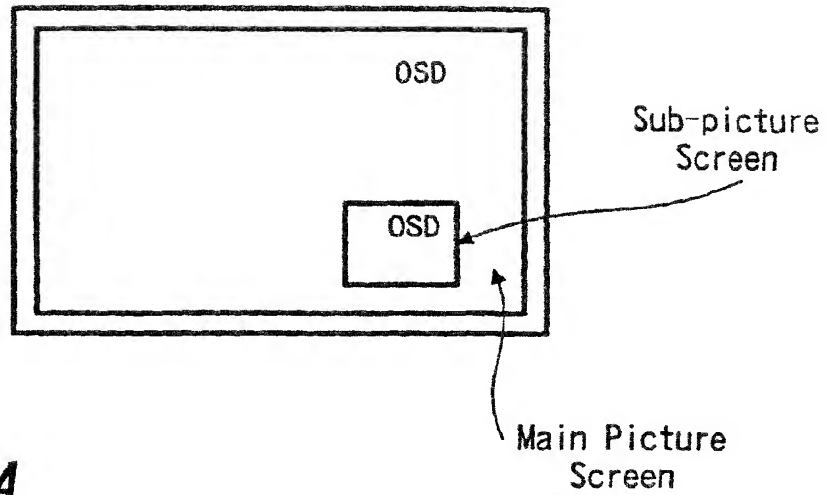


FIG. 4A

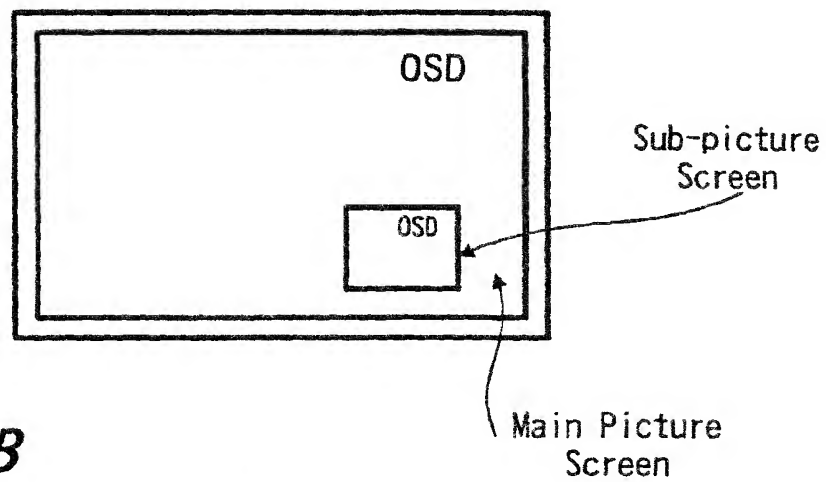
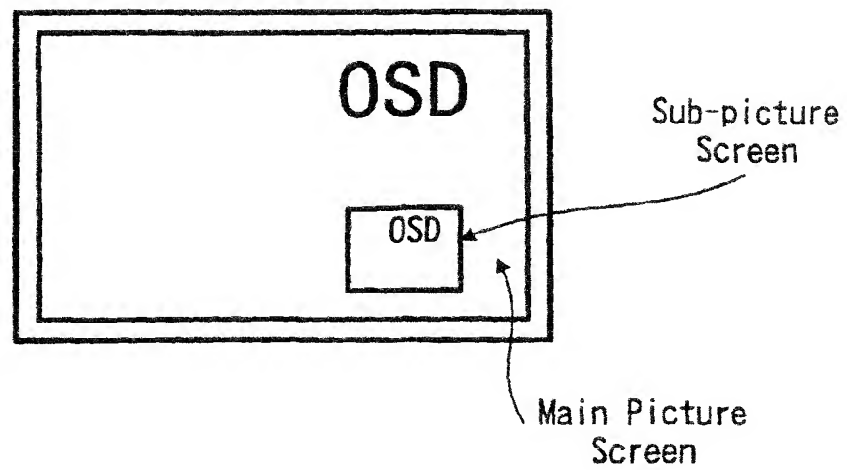


FIG. 4B



**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 7034

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-11-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5227875 A	13-07-1993	JP 4100379 A	02-04-1992
		JP 4192696 A	10-07-1992
WO 9501058 A	05-01-1995	US 5594509 A	14-01-1997
		AU 7114394 A	17-01-1995
US 5715515 A	03-02-1998	AU 3593695 A	09-04-1996
		BR 9508843 A	12-08-1997
		CN 1168754 A	24-12-1997
		DE 19581766 T	18-09-1997
		GB 2307821 A	04-06-1997
		JP 10508723 T	25-08-1998
		WO 9609720 A	28-03-1996
		AU 7054194 A	03-01-1995
		CN 1128076 A	31-07-1996
		EP 0714542 A	05-06-1996
		WO 9429840 A	22-12-1994
		US 5440632 A	08-08-1995
		AU 7204194 A	03-01-1995
		BR 9406793 A	30-01-1996
		CN 1125029 A	19-06-1996
		EP 0702878 A	27-03-1996
		JP 8511390 T	26-11-1996
		WO 9430008 A	22-12-1994
		US 5485221 A	16-01-1996
		US 5579057 A	26-11-1996
EP 0766463 A	02-04-1997	JP 9093548 A	04-04-1997
		CN 1152839 A	25-06-1997
		US 5734436 A	31-03-1998
US 4249211 A	03-02-1981	JP 54105920 A	20-08-1979

EPO FORM P0469

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82